
Rules Addendum

FSAEB 2026



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Relevant changes between versions are marked in italics

BR.1	BASE RULES AND ADDENDUM	4
BR.1.1	ADDENDUM	4
BR.1.2	BASE VERSION	4
BR.1.3	CONFLICTS	4
BR.1.4	VOIDED RULES	4
BR.1.5	TEMPLATES	4
BR.1.6	GLOSSARY	4
BR.2	OVERALL	5
BR.2.1	OFFICIAL LANGUAGE	5
BR.2.2	OFFICIAL COMMUNICATION	5
BR.2.3	SCORING	5
BR.2.4	TEAM PARTICIPATION	6
BR.2.5	VEHICLE YEAR	7
BR.2.6	SPONSORSHIP RESTRICTION	7
BR.3	DELIVERABLES	9
BR.3.1	PROJECT MODIFICATIONS FORM (PMF)	9
BR.3.2	READY-TO-RUN VIDEO (RTR VIDEO)	9
BR.3.3	BUILT PHOTOS	10
BR.3.4	INSPECTION CHECKLIST	10
BR.3.5	ACCUMULATOR VIDEO (EV ONLY)	10
BR.3.6	COST ADDENDUM	11
BR.3.7	SUBMISSION DEADLINES	11
BR.4	COMPETITION	13
BR.4.1	POSITIONS AND AUTHORITIES	13
BR.4.2	SAFETY	13
BR.4.3	ACCESS, BADGE AND DYNAMIC PASS	14
BR.4.4	FACULTY ADVISOR	15
BR.5	TECHNICAL INSPECTION	16
BR.5.1	STICKERS	16
BR.5.2	INSPECTION ORDER	16
BR.5.3	INITIAL INSPECTION	16
BR.5.4	MECHANICAL TECHNICAL INSPECTION	16
BR.5.5	MECHANICAL TECHNICAL INSPECTION (IC ONLY)	18
BR.5.6	ELECTRICAL TECHNICAL INSPECTION (EV ONLY)	19
BR.5.7	EGRESS TEST	19
BR.5.8	TILT TEST	19
BR.5.9	NOISE TEST	19
BR.6	STATIC EVENTS	20
BR.6.1	BEHAVIOR AND PARTICIPATION	20
BR.6.2	DESIGN EVENT	20
BR.6.3	COST EVENT	21
BR.7	DYNAMIC EVENTS	22
BR.7.1	SEASON TESTING	22
BR.7.2	GENERAL GUIDELINES	22
BR.7.3	HOT ZONE	22
BR.7.4	EVENT DISQUALIFICATIONS	23



BR.7.5	TRACK ENTRY	23
BR.7.6	DRIVER'S WALK	24
BR.7.7	AUTOCROSS.....	24
BR.7.8	ENDURANCE	24
BR.7.9	EFFICIENCY EVENT (IC).....	25

BR.1 BASE RULES AND ADDENDUM

BR.1.1 Addendum

This document has the purpose to adapt and expand the North American rules used as a basis for the Fórmula SAE BRASIL competition. The items present here tend to restrict the original rules and make the competition viable in the Brazilian scenario.

BR.1.2 Base version

The Base Rules used for Fórmula SAE BRASIL 2026 are found in the version **Formula SAE® Rules 2026, Version 1.0 10 Sept 2025**, available in the following link:

<https://www.fsaonline.com/cdsweb/gen/DownloadDocument.aspx?DocumentID=278fd4d7-aa27-4e33-bc4a-090148e662a0>

BR.1.3 Conflicts

In the case of conflicts between this document and the North American version, the rules established in this document prevail.

BR.1.4 Voided rules

The items of the Base Rules listed below are not valid for the Fórmula SAE BRASIL competition.

Item	Title	Justification
AD.2	<i>Official Information Sources</i>	Different links
AD.3.6	<i>Disabled Accessibility</i>	North American standards
AD.5.2.2b	<i>ESO Requirements</i>	Stricter requirement for the ESO as driver
DR.2.1	<i>Submission Location</i>	Different links
VE.1.3	<i>SAE Logo</i>	Specific SAE BRASIL logo
VE.1.5	<i>Transponder</i>	Transponder provided by the competition
IC.5.1.2	<i>Fuel Type</i>	Specific fuel in Brazil
EV.3.2.2	<i>Energy Meter</i>	Information provided on FSAEB website
EV.6.6.2b	<i>Overcurrent Protection</i>	Partially voided: specific FSAEB rule for fusible link
EV.7.5.5a	<i>Monitored percentage of cells</i>	Stricter requirement
S.1	<i>GENERAL STATIC</i>	Specific FSAEB scoring
S.3.4.2	<i>Cost Report Template</i>	Platform not used for submissions
D.1.1	<i>Dynamic Events and Maximum Scores</i>	Specific FSAEB scoring

BR.1.5 Templates

Except for the cases established by this document and published on the competition website, the templates for report submission files follow the North American versions and are available under the link below:

<https://www.fsaonline.com/cdsweb/gen/DocumentResources.aspx>

BR.1.6 Glossary

BMS: Battery Management System

BOM: Bill of Materials

DNF: Did Not Finish

DQ: Disqualified

ESF: Electrical System Form

ESO: Electrical System Officer

EV: Electric Vehicle

FSAEB: Fórmula SAE BRASIL

IC: Internal Combustion Engine Vehicle

KPI: Key Performance Indicator

PMF: Project Modifications Form

PPE: Personal Protective Equipment

SES: Structural Equivalency Spreadsheet

BR.2 OVERALL

BR.2.1 Official language

BR.2.1.1 Submissions & Online Communication

All official submissions, shared documents and online communication must be carried out exclusively in English.

BR.2.1.2 Presentations

During in-person presentations and discussions, teams may opt to use Portuguese in the spoken form. However, whenever a foreign judge is present, the use of English is mandatory. Presentation materials may be in Portuguese, although this is highly discouraged.

BR.2.2 Official Communication

BR.2.2.1 Technical Committee Forum

The forum is intended for the exchange of technical information between the Technical Committee and the teams, as well as among the teams themselves. Questions about rules, clarifications on specific cases and feedbacks on submitted reports are some of the goals of this space. Each team has a restricted area for both confidential and exclusive matters. For more information, check the link below:

<https://fsaebrasil.net/>

BR.2.2.2 Competition website

The competition website is the official platform of SAE BRASIL. In addition to unidirectional communication on logistics and organization matters, the Technical Committee uses the space to publish rules, templates and instructions that affect the competition processes as a whole.

<https://saebrasil.org.br/programas-estudantis/formula-sae-brasil/>

BR.2.2.3 Telegram channel

The Formula SAE BRASIL Telegram channel is used by Technical Committee for quick notifications and updates to the teams and is of utmost importance during the competition.

<https://t.me/+A4xRq-XqK2VkMzUx>

BR.2.2.4 Unofficial information

Any technical information provided outside the means mentioned above and not during the competition is considered unofficial by the Technical Committee.

BR.2.3 Scoring

	Event	Score
Static	Presentation	85
	Cost	120
	Design	180
Dynamic	Acceleration	90
	Skid Pad	75
	Autocross	120
	Efficiency	100
	Endurance	230
	Total	1000

The scoring for the competition in Brazil has more emphasis on the Static Events. Static Events are corrected directly by changing the scores for the subareas that comprise them. For Dynamic Events, the correction is applied to the multiplier coefficient A of the function $f(t)$ below, which depends on the measured test, while coefficient B is kept the same:

$$Score = A_{Adjusted} * f_{Original}(t) + B_{Original}$$

BR.2.4 Team participation

BR.2.4.1 Definitions

- BR.2.4.1.1 **Official Entry:** Registration of the team and team members for the competition, including own pit, access to restricted areas and listing in the final scoring.
- BR.2.4.1.2 **Unofficial Entry:** Presence of the team in the competition, including own pit and access to restricted areas. Possibility to receive feedback from Technical Inspection and Static Events judges at a pre-determined schedule. No listing in the final scoring.
- BR.2.4.1.3 **Valid Vehicle Year:** A First or Second Year Vehicle (see **BR.2.5**).
- BR.2.4.1.4 **Valid Tech Documentation:** The complete documentation needed for the Technical Inspection ("Tech" Penalty Group) submitted up to the last admissible deadline, reviewed and approved prior to the competition.
- BR.2.4.1.5 **Valid RTR Vehicle Status:** The approved status of a ready-to-run vehicle proved by video (see **BR.3.2**).
- BR.2.4.1.6 **Valid Built Vehicle Status:** The approved status of a built vehicle proved by photos (see **BR.3.3**). A built vehicle is understood to be any project that has a real chance, at discretion of the Technical Committee, of running in the competition.
- BR.2.4.1.7 **Valid Built Chassis Status:** The approved status of a built chassis only, obtained by photo submissions (see **BR.3.3**). This is understood to be anything that includes a fully built chassis and does not have a real chance, at discretion of the Technical Committee, of running in the competition.

BR.2.4.2 Entry Eligibility

- BR.2.4.2.1 A team may obtain Official Entry only if its vehicle has a valid Vehicle Year AND is either eligible for the Technical Inspection OR eligible for the Static Events.
- BR.2.4.2.2 A team may obtain Unofficial Entry if it proves a valid Built Chassis Status.
- BR.2.4.2.3 Teams that fail to obtain an Official or Unofficial Entry will be disqualified and removed from the competition (no refund of entry fees).

BR.2.4.3 Tech Eligibility

A vehicle is eligible for the Technical Inspection (and possibly Dynamic Events) if either:

- a. a Tech Documentation and an RTR Vehicle Status are approved.
- b. a Tech Documentation and a Built Vehicle Status are approved.

BR.2.4.4 Statics Eligibility

- BR.2.4.4.1 A vehicle is eligible for the Static Events if a valid RTR Vehicle Status is obtained.
- BR.2.4.4.2 Each individual Static Event requires specific reports to be submitted fully and on time for team participation. Such documentation does not affect the overall Statics Eligibility.

BR.2.5 Vehicle Year

BR.2.5.1 Definitions

BR.2.5.1.1 **New Chassis**: a physical chassis manufactured entirely from new materials.

- a. A chassis is considered as manufactured when presented at the Technical Inspection
- b. Individual tube changes on previous chassis are not considered a new manufacturing

BR.2.5.1.2 **New Design**: a project with performance or cost improvements compared to the previous ones in at least 2 of the 6 possible subsystems.

- a. A subsystem is considered as designed when presented via Design Event documentation
- b. The subsystems relate to the 6 technical areas assessed in the Design Event (Overall Vehicle not included)
- c. Performance or cost improvements are evaluated through a relevant KPI (see PMF)

BR.2.5.1.3 **First Year Vehicle**: A vehicle that has a new chassis AND a new design.

BR.2.5.1.4 **Second Year Vehicle**: A vehicle that either:

- a. has a new design and repeats a new chassis for the first time
- b. has a new chassis and repeats a new design for the first time
- c. repeats a new chassis and repeats a new design, both for the first time

With this criterion, a team may have consecutive Second Year Vehicles by alternating between a new chassis and a new design every season.

BR.2.5.1.5 **Third Year Vehicle**: A vehicle that repeats a chassis OR repeats a design more than twice.

BR.2.5.2 Penalties

BR.2.5.2.1 First Year Vehicles may participate in the competition without penalties.

BR.2.5.2.2 Second Year Vehicles may participate in the competition by receiving the following penalties:

- a. If repeated chassis, a penalty of 40 points is applied in the overall score
- b. If repeated design, for each of the 2 required substantial modifications that are not fulfilled a penalty of 30 points is applied in the Design Event (maximum of 60 points)

BR.2.5.2.3 Third Year Vehicles must not participate in any event of the competition.

BR.2.6 Sponsorship Restriction

Teams are strictly prohibited from displaying, disseminating or maintaining any form of sponsorship, financial support, partnership, advertising or image association with companies, brands, organizations or products related to tobacco, alcoholic beverages or gambling.

Any identified violation will result in penalties imposed at the discretion of the organizers.

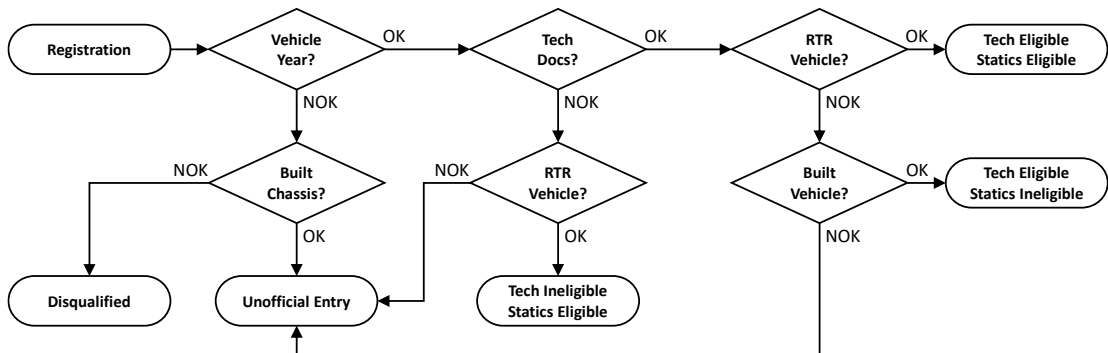
Appendix A

Examples of vehicle participation within 4 seasons:

	Season 1	Season 2	Season 3	Season 4
Case 1	New Chassis	Repeated Chassis*	New Chassis**	Repeated Chassis*
	New Design	Repeated Design*	New Design**	Repeated Design*
Case 2	New Chassis	Repeated Chassis*	New Chassis**	Repeated Chassis*
	New Design	New Design	Repeated Design*	New Design**
Case 3	New Chassis	New Chassis	New Chassis	Repeated Chassis*
	New Design	Repeated Design*	New Design**	New Design

**Penalty applied in the corresponding area*

***Mandatory for a valid Vehicle Year, since it follows a repetition*



Eligibilities Flowchart

BR.3 DELIVERABLES

BR.3.1 Project Modifications Form (PMF)

BR.3.1.1.1 The PMF serves as basis for the classification of the vehicle year.

- a. When proving a new chassis, photos of the real physical chassis are mandatory
- b. When proving a new design, a single, relevant, measurable and plausible KPI of the subsystem must be chosen, explained and evaluated in comparison to the previous project. CAD images and graphs should assist in this comparison.

Further instructions are provided in the document template.

BR.3.1.1.2 Its submission is mandatory and follows the “Tech” penalty group.

BR.3.1.1.3 The valid file format to be submitted is .XLSX.

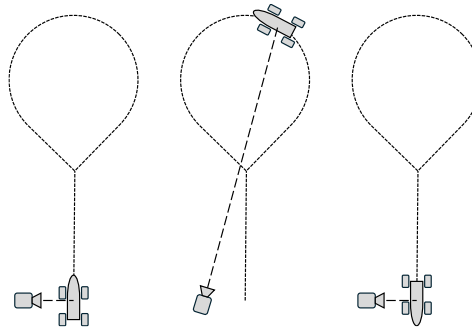
BR.3.2 Ready-To-Run Video (RTR Video)

BR.3.2.1.1 The RTR Video is used as proof for team participation in the competition (see **BR.2.4**).

BR.3.2.1.2 Its deadline is expected to be about 6 weeks prior to the competition.

BR.3.2.2 Procedure

1. Video begins with vehicle turned off and standstill, driver is seated and ready to drive. Cameraman is closely and safely positioned on the left side of the vehicle;
2. Driver turns on the engine (IC) / activates the tractive system (EV);
3. Vehicle gently launches;
4. Vehicle runs about 20 m at slow speed and does a U-turn;
5. Vehicle returns in similar pace to the starting point, gently breaking until full stop. Cameraman is now standing on the right side of the vehicle;
6. Driver turns off the engine (IC) / deactivates the tractive system (EV);
7. Video ends.



Procedure for RTR Video

BR.3.2.3 Filming

BR.3.2.3.1 The expected video duration is about 40 seconds. It must be less than 1 minute.

BR.3.2.3.2 The team or university must be somehow identifiable, either by the car number or university name labeled on the car or in a clear title for the video.

BR.3.2.3.3 The vehicle must be filmed by a third person, no footage from onboard cameras are accepted. The cameraman should not move from its initial position.

BR.3.2.3.4 The vehicle must be correctly framed during the entire video. Zoom adjustment is optional.

BR.3.2.3.5 The video must be as original, continuous from start to end and without any kind of editing.

BR.3.2.3.6 No music or audio effects must be added. The original audio must be uploaded.

BR.3.2.4 Conditions

BR.3.2.4.1 The vehicle must be the one intended to compete in the current season and must be completely finished and safe (with bodywork, firewall, etc.).

BR.3.2.4.2 The driver must wear his full equipment and be safely accommodated.

BR.3.2.5 Submission

BR.3.2.5.1 The RTR Video is considered valid if it can prove that the vehicle is ready-to-race, but penalties will be applied in the overall score for non-conforming items.

E.g.: driver does not turn off the vehicle at the end.

BR.3.2.5.2 The valid format to be submitted is a YouTube private URL.

BR.3.3 Built Photos

BR.3.3.1.1 The Built Photos enable confirmation of Built Vehicle or Built Chassis statuses required for alternative competition eligibility (see **BR.2.4**).

BR.3.3.1.2 These will only be used in case of rejection of RTR Vehicle status (either due to absence of video submission or invalid video).

BR.3.3.1.3 Its deadline is expected to be about 6 weeks prior to the competition.

BR.3.3.1.4 Three independent photos must be submitted for obtaining a valid status:

- a) Front view
- b) Side view (side is optional)
- c) Rear view

BR.3.3.1.5 Brightness, resolution and photo quality must be carefully considered

BR.3.3.1.6 If no RTR Video is submitted, the Built Photos are mandatory and follow the “Tech” penalty group. Sending the photos along with the video does not incur any penalties.

BR.3.3.1.7 The valid file format to be submitted is a single .ZIP or .7Z compressed file with three photos as .JPG, one for each view.

BR.3.4 Inspection Checklist

BR.3.4.1.1 The Inspection Checklist corresponds to the Technical Inspection form (mechanical for IC and EV and electrical for EV) filled out by the team itself, to be delivered on a date prior to the competition.

BR.3.4.1.2 The document version to be used is published by the Technical Committee on the competition website.

BR.3.4.1.3 Its submission is not mandatory and has no associated penalties.

BR.3.4.1.4 The valid file format to be submitted is .PDF.

BR.3.5 Accumulator Video (EV only)

BR.3.5.1.1 The Accumulator Video enables the evaluation by the Technical Inspection crew of vehicle photos. Before the competition, the team will receive feedback on potential non-conforming items and the corresponding corrections that can be made for a successful Technical Inspection.

BR.3.5.1.2 Detailed instructions for its submission are published by the Technical Committee on the competition website.

BR.3.5.1.3 Its submission is not mandatory and has no associated penalties.

BR.3.5.1.4 The valid format to be submitted is a YouTube private URL.

BR.3.5.2 Fuel Type (IC Only)

BR.3.5.2.1 The fuel type is determined directly from the Design Spec Sheet.

BR.3.5.2.2 In the absence of valid information in the corresponding cell, gasoline will be assigned. If the team mistakenly declares E85, then E100 is considered.

BR.3.5.2.3 After submitting the Design Spec Sheet, the team must inform the Technical Committee about changes in the fuel type through its team area in the forum.

BR.3.6 Cost Addendum

BR.3.6.1.1 Cost Addendums must be submitted online and up to 24h before the start of the Cost Event.

BR.3.6.1.2 Deletions, additions and changes must be documented with a single image, as below.



BR.3.6.1.3 Missing compulsory images will result in 10 penalty points.

BR.3.6.1.4 Its submission is not mandatory and has no associated penalties other than the ones related to the Cost Event.

BR.3.6.1.5 The valid file format to be submitted is .XLSX.

BR.3.7 Submission deadlines

BR.3.7.1.1 Via the competition website and in a timely manner, the Technical Committee informs teams about deadlines, platforms to submit documents and relevant templates.

BR.3.7.1.2 Each submission may be subject to a defined tolerance period beyond the deadline, within which delay penalties apply.

BR.3.7.1.3 Only the most recent uploaded file within the tolerance is considered for the submission.

E.g.: If a team submits a file a day before the deadline and another a day after (still within tolerance), only the second file is considered and a delay penalty is applied.

BR.3.7.2 Modifications

If a project change is made after documents have been approved, the team may request a new submission. To do so, the Technical Committee must be contacted through the team's restricted area on the forum.

BR.3.7.3 File Standards

BR.3.7.3.1 All submitted documents must follow the naming convention below:

[Team Number]_[Competition ID]_[Report Acronym]_[Institution]_[Team's Name]

- The team number must always have two digits with a leading zero; in the EV category it must be also preceded by the letter E
- The competition ID is the acronym "FSAEB" followed by the current year in YYYY format
- The name of the educational institution should be abbreviated or shortened
- There should be no spaces
- Special characters should be avoided

E.g. IC: 01_FSAEB2026_ETCNI_UFXYZ_Formula_Racers

E.g. EV: E01_FSAEB2026_ESF_UFXYZ_Formula_Racers

BR.3.7.3.2 The acronyms for each report are defined below:

ETC Notice of Intent (IC)	ETCNI	Inspection Checklist	IC	Spec Sheet	SS
ETC Systems Form (IC)	ETCSF	Built Photos	BP	Design Briefing	DB
ESO / ESA Form (EV)	ESOESA	Cost Report & eBOM	CReBOM	3-View Drawings	3VD
ESF (EV)	ESF	Cost Addendum	CA	Project Modifications Form	PMF
SES	SES	Presentation Document	PD		

- An index after the acronym must identify submissions related to corrections.

*E.g.: *SES2* for the 2nd SES submission (after the 1st correction of the 1st submission)*

BR.3.7.3.3 A penalty of 5 points will be applied for any kind of incorrect filename.

E.g.: Using "E1" instead of "E01" or missing index for a submission related to a correction

BR.3.7.3.4 Each file has a size limit of 25 MB, except for the Cost Report, which must be less than 200 MB. A penalty of 5 points will be applied for every exceeding 10 MB.

E.g.: A 50 MB file for the Design Briefing incurs 15 penalty points

BR.3.7.4 Format Penalties

Any violation of clear instructions in the template or change in its format may result in penalties being applied to the related event. Typical penalties will range from 2 to 10 points and are defined at the discretion of the Technical Committee

E.g.: Unfilled headers, formatting changes to font, background, cells or text fields; images outside designated area or in inappropriate scale; missing relevant data; exceeding number of slides; removal of slide numbering; hidden or added rows in a spreadsheet; removal of unused tabs; unrequested change of tab names; etc.

BR.3.7.5 Not Submitted

BR.3.7.5.1 A document will be completely disregarded and marked as Not Submitted under following conditions:

- Empty or nearly empty template
- Severely changed or manipulated template
- Unlocked fields/cells that were originally locked (as in a spreadsheet)
- Wrong file format (e.g.: .PDF instead of .XLSX)
- Wrong template (e.g.: not actual year or latest version)
- Wrong language (not in English)

Tip: Avoid editing spreadsheets via Google Sheets, which tends to corrupt files

BR.3.7.5.2 Any Not Submitted document of the "Tech" penalty group results in maximum delay penalty. If new submissions related to corrections are planned, the team may have the chance of submitting a new version of the document. Otherwise, the team may lose its Tech Eligibility.

E.g.: A Not Submitted SES with 5 days tolerance incurs 100 penalty points.

BR.3.7.5.3 Any Not Submitted document for Static Events results in removal of the related event.

BR.4 COMPETITION

BR.4.1 Positions and authorities

BR.4.1.1 Technical Committee

Group responsible for the organization and technical definitions of the competition. Among its members, the Event Chiefs have the maximum authority to make decisions in their area.

BR.4.1.2 Judges

Volunteers for technical evaluations during the competition (Technical Inspection and Static Events) and to assist with relevant technical issues (e.g.: pit safety). They follow instructions from the Technical Committee and have no authority to make decisions outside of pre-established procedures.

BR.4.1.3 Staff

Members of SAE BRASIL and responsible for competition logistics.

BR.4.1.4 Assistance

Team volunteers to assist with miscellaneous tasks during the competition.

BR.4.2 Safety

BR.4.2.1 Behavior

BR.4.2.1.1 Unless there is an explicit danger, it is expressly forbidden for a person to run anywhere at the competition site.

BR.4.2.2 Equipment

BR.4.2.2.1 High-pressure cylinders must have a valve protection cap, regardless of their load level. Valves must always be handled with safety glasses.

BR.4.2.2.2 Teams and visitors are not allowed to use drones or similar devices during the competition. Only the media crew with explicit authorization from the organization may use them, and under specific and restricted circumstances.

BR.4.2.3 Clothing

BR.4.2.3.1 In the pits, every person close to a working area must wear:

- Cotton pants or shorts (jeans, twill, etc.)
- Closed shoes

BR.4.2.3.2 In the rework area, every person must wear:

- Cotton pants or shorts (jeans, twill, etc.)
- Closed shoes
- Safety glasses

Gloves are recommended for specific processes.

BR.4.2.3.3 While welding in the rework area, the welder and assistants must wear:

- Cotton pants or shorts (jeans, twill, etc.)
- Safety shoes
- Appropriate welding equipment (mask, gloves, sleeves and apron)

BR.4.2.3.4 Clothing made of synthetic fabric is prohibited in any activity involving vehicles or manufacturing processes (work in the pits and in the rework or driving area). Its use should be avoided throughout the competition event, with preference given to cotton fabrics.

Examples of common synthetic fabrics to be avoided: polyamide, polyester and nylon.

BR.4.2.4 Work in the pits

For all processes in the pits that pose risks nearby, the use of non-flammable protective folding screens or curtains is mandatory. These must separate neighboring pits and any person in the surroundings.

BR.4.2.5 Rework area

Processes that may release any type of chip/splinter or pose considerable risks must be carried out in a space designated by the Technical Committee, outside the pits.

E.g.: Welding, cutting with a grinder, using a blowtorch and sanding with a power tool

BR.4.2.6 Engine and Tractive System operation

Teams may only turn the vehicles on – starting engines (IC) and tractive system (EV) – in the designated areas:

- Noise (IC), Rain (EV) and Brakes Test areas during the Technical Inspection
- Entrance of Dynamic Events and Hot Zone
- Team's pit

Any other area requires the explicit consent of the Technical Committee.

BR.4.2.7 Engine and Tractive System operation in the pits

BR.4.2.7.1 Teams may turn the vehicle on in the pit by themselves only after receiving the Tilt Table approval sticker and having it on the vehicle. Upon any action, neighboring pits should be notified.

BR.4.2.7.2 One of the team members must be constantly aware of the vehicle's operation and have an appropriate fire extinguisher at hand.

BR.4.2.7.3 For electric vehicles, the presence of the ESO is mandatory.

BR.4.2.7.4 The vehicle's tractive wheels must not be in contact with the ground.

BR.4.2.7.5 While operation, no team member must be sitting inside the vehicle nor being supported by it.

BR.4.2.8 Penalties

BR.4.2.8.1 For any violation of safety rules or disregard of direct orders from the Technical Committee:

- a. 1st occurrence: Violation record in the presence of the team leader
- b. 2nd occurrence: Violation record in the presence of the captain and faculty advisor
- c. 3rd occurrence: 200 penalty points on the overall score
- d. 4th occurrence: Disqualification of the team from the competition

BR.4.2.8.2 The count of the occurrences is cumulative throughout the current competition.

BR.4.3 Access, Badge and Dynamic Pass

BR.4.3.1 Provision

BR.4.3.1.1 Badges or wristbands (individual for each participant) are provided upon onsite registration.

BR.4.3.1.2 The Dynamic Passes (4 per team) are provided to the team only after complete approval of the vehicle in the Technical Inspection, Tilt-Table and Rain/Noise Test (before Brake Test).

BR.4.3.2 Usage

Competitors must always wear their identification badges or wristbands in a visible manner.

BR.4.3.3 Team access

BR.4.3.3.1 A maximum of 3 team members is allowed during the Technical Inspection (including drivers and ESOs).

BR.4.3.3.2 A maximum of 4 team members is allowed in the Dynamic Areas (including drivers and ESOs).

BR.4.3.4 Dynamic Pass

- BR.4.3.4.1 All team members in the Brake Test Area, Hot Zone or in a Dynamic Area must carry a Dynamic Pass (including drivers and ESOs). These are all the areas that contain driven moving vehicles.
- BR.4.3.4.2 The Dynamic Pass is not required for the Autocross Driver's Walk, but it is required for the Endurance Driver's Walk.
- BR.4.3.4.3 Any team member not carrying a Dynamic Pass will be removed from the related area. A penalty of 20 points may be applied for every removed member of the team.

BR.4.3.5 ESO

Any registered ESO must not be a driver, even if there is more than one in the team.

BR.4.3.6 Press Pass

- BR.4.3.6.1 A Press Pass entitles a team member access to the Technical Inspection and Dynamic Area without a Dynamic Pass and is used for media purposes only. It is obtained following specific requirements defined by SAE BRASIL.
- BR.4.3.6.2 Team members with a Press Pass must not actively participate or interact with the team.
- BR.4.3.6.3 Only one member per team may access the Technical Inspection and a Dynamic Area with a Press Pass.
- BR.4.3.6.4 Authorized media team members must act safely and follow the organizers' instructions.
- BR.4.3.6.5 Anyone found in the active areas with inconsistent purposes will be removed. Violations may incur penalties for the associated team.

BR.4.4 Faculty Advisor

BR.4.4.1 Registration

The faculty advisor must not be a team member.

BR.4.4.2 Access

- BR.4.4.2.1 The faculty advisor has his own identification and may access all areas that team members do, such as pits, Technical Inspection, Static and Dynamic Events.
- BR.4.4.2.2 The faculty advisor does not need a Dynamic Pass or a Press Pass.
- BR.4.4.2.3 The faculty advisor does not have access to areas exclusive to other teams, especially during Static Events.

BR.4.4.3 Participation

- BR.4.4.3.1 The faculty advisor may monitor all stages of Technical Inspection, Static and Dynamic Events. However, he/she must not interfere or actively participate in discussions with the judges or organizers.
- BR.4.4.3.2 The faculty advisor must not actively work on the vehicle during the competition nor support the team in decisive moments (e.g.: endurance driver change).
- BR.4.4.3.3 To avoid controversial situations, the faculty advisor is encouraged to not inquire judges about decisions nor touch the team's vehicle during the competition.

BR.5 TECHNICAL INSPECTION

BR.5.1 Stickers

All stickers provided during the Technical Inspection are part of the vehicle and equipment approval process and must be used and visible throughout the competition.

BR.5.2 Inspection Order

BR.5.2.1 Initial Inspection

BR.5.2.1.1 The Initial Inspection works on a First-Come, First-Served basis.

BR.5.2.1.2 Its approval represents a prerequisite only for the Tilt-Table and does not influence the order or agility in the Electrical or Mechanical Technical Inspection.

BR.5.2.2 Electrical and Mechanical Technical Inspection

BR.5.2.2.1 The inspection order follows the priority criteria below:

1. EV vehicles before IC vehicles
2. (EV Only) Valid submission for Accumulator Video
3. Fewer failed submissions for the SES
4. Valid submission for RTR Video
5. Valid submission for Inspection Checklist
6. Lower team registration number

BR.5.2.3 Vehicle state

BR.5.2.3.1 Vehicles that are explicitly not able to run may not enter the Technical Inspection. Teams may receive unofficial feedback from the judges on a specific period at the discretion of the Chief Technical Inspection.

BR.5.3 Initial Inspection

BR.5.3.1 Helmets

BR.5.3.1.1 INMETRO standards are not accepted for helmets.

BR.5.3.1.2 Most manufacturers recommend replacing their helmets after 5 years. Helmets with a manufacturing date beyond this period must be in pristine condition and will be inspected with extra care.

BR.5.3.1.3 Drilling holes by the team is prohibited anywhere on the helmet. Custom helmet communication devices are accepted as long as they are securely fixed and do not affect the driver's safety.

BR.5.3.2 Flame-resistant materials

BR.5.3.2.1 Holes in driver suits, balaclavas, socks and gloves must be sewn with Nomex, meta-aramid or similar threads, ensuring flame resistance. The used thread roll must be presented to the judges during the Technical Inspection for verification and approval.

BR.5.3.2.2 Logos sewn onto driver suits must be sewn onto the outer fabric layer only, without penetrating the flame-resistant material.

BR.5.3.2.3 Shoes with sewn holes are not accepted.

BR.5.4 Mechanical Technical Inspection

BR.5.4.1 Good engineering practices

Judges are able to request corrections for potentially dangerous items at their discretion, even if not explicitly stated in the rules. Special cases will be taken to the Technical Committee.

BR.5.4.2 Mandatory SAE stickers

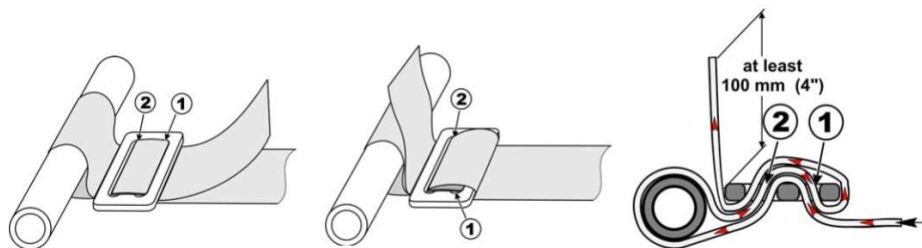
- BR.5.4.2.1 Teams must apply the sticker with the SAE BRASIL logo (width x height: 250 x 41.7 mm) together with the sponsor sticker (100 x 100 mm) on their car.
- BR.5.4.2.2 The stickers must be positioned in front of the nose on both sides (total of 4 stickers) in a visible manner.
- BR.5.4.2.3 The stickers are provided by SAE BRASIL at the competition.

BR.5.4.3 Harness Points

- BR.5.4.3.1 The harness anchor points should be aligned with the line of action of the straps tension, in which the tabs or brackets should be mainly pulled. Harness tabs and brackets subject to bending with overloading of the welds is strongly discouraged and may not be accepted.
- BR.5.4.3.2 The belt strap or buckles must have a clearance with the fastening tabs, avoiding being pressed by them.
- BR.5.4.3.3 Loose or poorly threaded bolts to facilitate belt pivoting are prohibited.
- BR.5.4.3.4 The use of two or more nuts on the same bolt to allow belt pivoting is prohibited.
- BR.5.4.3.5 (removed)
- BR.5.4.3.6 (removed)
- BR.5.4.3.7 If a threaded eyebolt is installed a blind hole, a safety wire must be passed through its center and around a nearby element, preventing it from unscrewing when the belt is not clipped.

BR.5.4.4 Shoulder Harness

- BR.5.4.4.1 Wrapped shoulder straps should follow the installation method below (*Courtesy: Schroth Racing*), in which only one side of the buckle (3-bar adjuster) may be visible. Variations are accepted if they are clearly indicated in the manufacturer's manual.



- BR.5.4.4.2 On the sides of the wrapped belts around tubes, there must be stops to prevent any axial sliding (stops not present in the images above), ensuring their required spacing.
- BR.5.4.4.3 Excess straps beyond 100 mm must be rolled up and secured, preventing the belt from falling behind the firewall or coming into contact with any risk component.

BR.5.4.5 Steering wheel

The concave outer perimeter of the steering wheel must be made of robust material, such as metal or thick and high-density polymer. Use of fragile components (e.g.: acrylic sheets) for this purpose is prohibited.

BR.5.4.6 Chassis

- BR.5.4.6.1 Inspection holes: The Main Hoop and Front Hoop must have a $\varnothing 4.5$ mm hole in straight areas, outside of curves and preferably orthogonal to the tube seam.
- BR.5.4.6.2 Teams must not grind any of the chassis welds. Poor quality welding will be rejected.
- BR.5.4.6.3 Bends in tubes must not present considerable wrinkling.

BR.5.4.7 Fasteners

BR.5.4.7.1 Accepted as Positive Locking:

- ✓ Castellated nut with cotter pin
- ✓ Spider washer with lock nuts

BR.5.4.7.2 Not accepted as Positive Locking:

- X Jam nut

BR.5.4.7.3 Critical Fasteners are required on several vehicle components. The list below summarizes, but is not exhaustive, what is contained in the Base Rules:

- Primary Structure
- Suspension system
- Steering system
- Brake System
- Mechanically attached Roll Hoop Bracing and Frame Members
- Mechanically attached Anti Intrusion Plate
- Mechanically attached Impact Attenuator
- Harness
- Scatter shields and guards
- Accumulator Container (EV)
- Fuel rail (IC)

BR.5.4.7.4 Fasteners with button head cap, countersunk head, panhead, flat head or round head and similar are prohibited for Critical Fasteners.

BR.5.4.7.5 Tie rods, pushrods and pullrods that have a combination of left-hand and right-hand threads for the rod-ends must have Positive Locking on at least one side. Nylon lock nuts should not be used due to the often adjustments required on these components.

BR.5.4.8 Firewall

BR.5.4.8.1 For the sealing between firewall panels, aluminum foil tape may be used. Silver tape with this purpose is prohibited.

BR.5.4.8.2 For components subject to critical temperatures, including the firewall, the use of any bituminous material (e.g.: asphalt blanket) is expressly prohibited, as well as flammable materials or materials that emit toxic gases at high temperatures.

BR.5.5 Mechanical Technical Inspection (IC only)

BR.5.5.1 Fuel

BR.5.5.1.1 The available fuels in the competition are either the Brazilian “*gasolina premium*” (E25) or “*etanol comum puro*” (E100). Mixtures or additives are prohibited.

BR.5.5.1.2 The intake system restrictor follows the Base Rules dimensions:

- a. E25 20.0 mm
- b. E100 19.0 mm

BR.5.5.2 Fuel tank

BR.5.5.2.1 The vehicle must be presented for Technical Inspection with the fuel tank completely empty.

BR.5.5.2.2 The fuel tank must have a practical and manual system to completely drain the fuel (by valves, caps or similar). Electric pumps, whether internal or external, are not permitted for this purpose.

BR.5.5.3 Fuel lines

BR.5.5.3.1 Metal braided hoses must not be secured by any type of clamp. They must have the appropriate connections assembled as established by the manufacturer.

BR.5.5.4 Primary Master Switch

The Primary Master Switch should be a *FIA 6-pole Master Switch* type with a discharge resistor, which can safely handle the disconnection of all electrical circuits of an IC engine with alternator.

BR.5.6 Electrical Technical Inspection (EV only)

BR.5.6.1 Direct temperature measurement of lithium-ion batteries

BR.5.6.1.1 The temperature of 30% of the accumulator cells must be physically measured and monitored by the BMS.

BR.5.6.1.2 Fixing of temperature sensors must not be done using tape alone. The use of epoxy or thermally conductive adhesives is recommended.

BR.5.6.2 Indirect temperature measurement of lithium-ion batteries

BR.5.6.2.1 All accumulator cells that do not have a physical temperature measurement must have their temperature value estimated from mathematical models.

BR.5.6.2.2 Teams must clearly document in the "Overview" tab of the ESF how the modeling of the virtual sensors originated. Calculations based on heat transfer theory or finite element simulations are accepted.

BR.5.6.2.3 Teams must present at Technical Inspection the indirect measurement model developed in detail and prove that it is part of the BMS monitoring algorithm and used for safety measures.

BR.5.6.3 Fusible Link

Fusible links may open (fuse) at currents up to twice the continuous current rating of the battery cells they protect. Compliance with the document "*Fusible Link Testing Guidelines*" is required.

E.g.: A cell with a continuous discharge rating of 45 A may be protected by a fusible link specified to open at 90 A past 300 seconds.

BR.5.6.4 Technical Inspection Equipment

BR.5.6.4.1 Teams must have two 4 mm banana-banana type measuring tips at their disposal.

BR.5.6.4.2 Demonstration of items conformity include specification manual, labels on equipment or similar. Recommended:

- a. Overall: Brazilian Standard NR-10
- b. Tools, wrenches and pliers: IEC/EN 60900
- c. Multimeters, measuring tips and measuring devices: IEC/EN 61010 CATIII
- d. Protective glasses, face shield against electric arc, gloves and other PPEs: "*Certificado de Aprovação*" (C.A.)
- e. Mats and gloves: Test report

BR.5.7 Egress test

The judge responsible for the egress test may impose a specific side for the driver to perform the test. This will preferably be the most difficult side.

BR.5.8 Tilt Test

When tilting the vehicle at 60°, leakage of flammable fluids (oil, fuel, grease or others) is not acceptable in any order of magnitude.

BR.5.9 Noise Test

Team members who follow the Noise Test procedure must wear proper PPE: safety glasses and ear protectors (not provided by the competition).

BR.6 STATIC EVENTS

BR.6.1 Behavior and participation

BR.6.1.1.1 In the restricted area of Static Events, it is prohibited to take photos, film or record sounds.

BR.6.1.1.2 A maximum of two people per evaluation area are allowed to participate during the Design and Costs Events. The total number of members is obtained by the number of areas to be presented.

EV only: ESOs are also counted for the number of participants

BR.6.1.1.3 During the team's entry and exit from the evaluation bays, limited assistance by external people is allowed for assembling and disassembling the presentation material.

BR.6.2 Design Event

BR.6.2.1 Evaluation areas

Area	Score
Overall Vehicle	25
Vehicle Dynamics	30
Aerodynamics	20
Powertrain	30
Chassis	30
Driver Interface	25
Low Voltage & Data Acquisition	20
Total	180

BR.6.2.2 Phases

The Design Event at FSAEB is divided into two phases.

BR.6.2.3 First Phase

BR.6.2.3.1 All eligible teams (valid documentation with Statics Eligibility) participate in the first phase.

BR.6.2.3.2 During a time determined by the competition schedule, parallel presentations of all areas are carried out by the team, followed or intercalated by questions from the judges.

BR.6.2.3.3 An introduction of approximately 3 minutes (taken as presentation time) is recommended for an overview of the project, highlighting the main points in the development of the vehicle.

BR.6.2.3.4 If occurring at the time, vehicle weighing is mandatory for participation in the event.

BR.6.2.4 Second Phase – Design Finals

BR.6.2.4.1 The second phase is only possible for teams that meet an expected level of engineering quality during the first phase. The best eligible teams are called up.

BR.6.2.4.2 Participants must delve deeper into some of the topics presented in the first phase based on technical questions posed by the judges.

BR.6.2.4.3 The duration of the Design Finals is considerably longer than the first phase and is estimated by schedule.

BR.6.2.4.4 Design Finals scoring is established as follows:

$$Factor_{1^{st} Phase} = \frac{TotalScore_{Cut-off}}{TotalScore_{1^{st} Phase}}$$

$$Factor_{Finals} = \frac{180 - TotalScore_{Cut-off}}{180}$$

$$Finalist Design Score = Factor_{1^{st} Phase} * Score_{1^{st} Phase} + Factor_{Finals} * Score_{Finals}$$

- The formula can be applied either to the total score as well as to the score of the individual evaluation areas.
- The cut-off score is determined by the Design Chief when selecting the best teams for the Design Finals.
- Any previous penalties related to submissions are disregarded for the Design Finals.
- From the formulation:
 - o The cut-off score is equally guaranteed to all finalist teams.
 - o A team may reach the maximum final score only if it gets maximum score at the Design Finals.

BR.6.3 Cost Event

BR.6.3.1 Evaluation areas

Area	Score
Cost (not presented)	40
BOM	25
Manufacturing Feasibility	25
Real Case	30
Total	120

BR.6.3.1.1 The vehicle cost score is calculated according to the formula below, where C_{your} refers to the cost for the team and C_{max} and C_{min} are respectively the highest and lowest observed and valid costs among all teams. Valid costs are those corrected for penalties.

$$Cost Score = 40 * \frac{C_{max} - C_{your}}{C_{max} - C_{min}}$$

BR.6.3.1.2 Each team must prepare proper documentation demonstrating the manufacturing feasibility and the maintenance requirements for the vehicle owner. The subsystems' accessibility and the interchangeability of their respective parts will be evaluated, as well as their fastening elements.

BR.6.3.1.3 Teams must be prepared to discuss in detail a real case scenario provided by the organization, to be informed prior to the competition.

BR.6.3.2 Vehicle condition

Vehicles must be presented for the Cost Event in finished condition, fully assembled, complete and ready to run.

BR.6.3.3 Delays

Delays of up to 5 minutes on Event Day and Discussion will be penalized. After this time, team entry will not be permitted.

BR.7 DYNAMIC EVENTS

BR.7.1 Season testing

For teams found to have violated safety measures during tests prior to the competition, penalties will be applied. Common examples:

- Incomplete driver equipment
- Unbuckled harness belts
- Cameras mounted on the driver's helmet
- Missing impact attenuator
- Missing firewall
- Reckless driving

Severity and circumstances will be considered. Promotional or informal team videos may be used as a basis for penalties.

BR.7.2 General Guidelines

BR.7.2.1 Driver equipment

The driver must wear the equipment listed below whenever in the cockpit with the combustion engine on (IC) or the traction system active (EV) and during Dynamic Events.

- Helmet, balaclava, driver suit, sockets, shoes, gloves and arm-restraint

BR.7.2.2 Starting assistance (IC)

The use of an external battery for starting assistance of combustion engines is not permitted in the Dynamic Event area, which includes the starting line.

BR.7.2.3 Marshal instructions

BR.7.2.3.1 Instructions from marshals (track assistant staff) must always be followed.

BR.7.2.3.2 Failure to follow instructions to turn the vehicle off will result in DNF of the corresponding run.

BR.7.2.4 Opposite direction

Driving in the wrong direction to that intended will result in a DNF of the run and eventual time penalties for the best time in the related event.

BR.7.2.5 Damages

Teams will be responsible for any damage to any component or equipment used by the Formula SAE organization for the Dynamic Events, including, but not limited to, timing equipment, transponders and flags.

BR.7.3 Hot Zone

BR.7.3.1 General

BR.7.3.1.1 The Hot Zone is the area dedicated to tests on track during the competition. No score is associated with such tests.

BR.7.3.1.2 There is no limit for how much a team uses the Hot Zone, as long as the queue and opening hours are respected.

BR.7.3.1.3 If a testing team poses repeated safety risks or disregards the instructions of the marshals, prohibitions and penalties may occur.

BR.7.3.1.4 The Hot Zone offers a space where minor adjustments can be made to the car. Major repairs and maintenance (e.g.: suspension disassembly) are not permitted.

BR.7.3.1.5 Tools and additional equipment must be held outside of the active testing area of the vehicles.

BR.7.3.2 Priority

BR.7.3.2.1 Teams are given at least 5 minutes in the Hot Zone.

BR.7.3.2.2 If there are other vehicles waiting in the queue, the testing vehicle must exit the Hot Zone after 5 minutes and go to the end of the queue.

BR.7.3.2.3 If there are no other vehicles in the queue, no time limit applies.

BR.7.4 Event Disqualifications

BR.7.4.1 Leaks

BR.7.4.1.1 Leaks of non-flammable liquids are tolerated (e.g.: water).

BR.7.4.1.2 Leaks of low-volatile flammable liquids are tolerated up to 2 drops reaching the ground every 30 seconds (e.g.: oils, grease).

BR.7.4.1.3 Leaks of highly volatile flammable liquids are not tolerated in any magnitude (e.g.: fuel).

BR.7.4.1.4 During evaluation of the leak, the vehicle remains stationary (not shaken).

BR.7.4.1.5 Leaks observed during or after a run will result in immediate DNF.

BR.7.4.1.6 Leaks observed before the start of an event will result in ineligibility for the vehicle. It may only enter the event after addressing the issue.

BR.7.4.2 Smokes

If there is no imminent risk of fire, smoke from the vehicle is tolerated up to a safe level, at discretion of the Chief Dynamics Event.

BR.7.4.3 Vehicle integrity

Functional components, tools left in the cockpit and onboard cameras must not detach from the vehicle during a Dynamic Event at any time.

BR.7.4.4 Track surface

Frequent and/or intense contact of the vehicle with the track surface other than through the tires must not occur. For this matter, the team will be given a warning before any penalty.

BR.7.4.5 Acceleration Event

Moving the vehicle 30 cm or more (rollout) before the timing sensor will result in DNF.

BR.7.4.6 Skid Pad Event

Dropping or bumping into the set of cones that protects the timing sensor will result in DNF.

BR.7.4.7 Autocross Event

Driving a second lap without returning and stopping at the starting line will result in DNF.

BR.7.5 Track entry

BR.7.5.1 Event times

BR.7.5.1.1 The start and end times of each event are announced through official communication channels. It is the team's responsibility to monitor them and develop a corresponding strategy.

BR.7.5.1.2 Only vehicles that begin moving after a green flag is waved before closing time are eligible for scoring at the event.

BR.7.5.1.3 Any run granted due to external factors (e.g.: yellow flag) is invalidated by the end of the event.

BR.7.5.2 Green Flag Priority

For the Skid Pad, Acceleration and Autocross events, the driver on track always has the priority for a re-run. First Drivers in the queue may enter in sequence. Second Drivers may only enter the track if no First Driver is line-up in the queue and no re-run occurs.

BR.7.5.3 Readiness

Vehicles and drivers lined up for track entry must be fully ready to run with no pending actions, such as buckling the driver, engine warm-up or fueling.

BR.7.6 Driver's Walk

BR.7.6.1 Purpose

A Driver's Walk takes place before the Autocross and Endurance Events respectively and aims to familiarize the drivers with the track layout with explanations from the Event Chief.

BR.7.6.2 Questions

Questions related to the track will only be answered during the Driver's Walk. No clarifications will be given afterwards.

BR.7.7 Autocross

The event will be paused from time to time (approx. every 30 minutes) for the removal of eventual broken vehicles on the track. This removal may also occur whenever there are no vehicles in the queue.

BR.7.8 Endurance

BR.7.8.1 Run order

BR.7.8.1.1 The endurance run order is the reverse classification of the Autocross (fastest last).

BR.7.8.1.2 Teams that passed the Technical Inspection but did not finish a single Autocross run are the first on the list, in reverse order of car numbers (smallest last).

BR.7.8.1.3 Fueling before entering the track is mandatory for IC vehicles. The dedicated time for this procedure must be taken into consideration by the team.

BR.7.8.2 Delays

Teams that show up out of order at the starting line, are not ready to enter the track or fail to start the vehicle when needed may run at the end of the main list. No further chances are given. Penalties according to the Base Rules will be applied.

BR.7.8.3 Minimum Speed

BR.7.8.3.1 The Track Lap Time is defined as the lowest of the two values:

- a. The fastest lap without off course violations, specific per category (IC or EV)
- b. The lap time corresponding to an average speed of 36 km/h

E.g.: For a track with 1000 m, 36 km/h corresponds to a lap time of 100 s

BR.7.8.3.2 All cars must consistently maintain a lap time less than 150% of the Track Lap Time.

- a. A moving average of the three last laps are taken for the calculation
- b. Laps with stalls, black flags and similar incidents are disregarded

BR.7.8.3.3 Cars that fail to meet the minimum speed criteria will be removed from the Endurance Event.

BR.7.8.3.4 Out of order cars (at the end of the main list) are not exempt from this rule.

BR.7.8.4 Blue flags

BR.7.8.4.1 Slow drivers who fail to follow a blue flag procedure twice will be given a verbal warning without penalty and will return to the track.

BR.7.8.4.2 By a third violation, a penalty of 2 off courses is applied.

BR.7.8.4.3 If a fourth violation occurs, the team is disqualified from the Endurance Event.

BR.7.8.5 Stuck objects

BR.7.8.5.1 Stuck objects in the car (e.g.: cones) that do not pose a safety risk do not need to be removed. Drivers may continue driving in such situations. If desired, the driver may stop and request assistance from marshals to remove the object.

BR.7.8.5.2 In case of objects posing a risk, marshals will signal the driver to stop so that the object can be removed.

BR.7.8.5.3 Whenever the vehicle is stopped for an object to be removed, the duration for the action will not be deducted from the final time.

BR.7.8.6 Stalled cars

BR.7.8.6.1 Under yellow flag and only following instructions from marshals, drivers must deviate stalled cars in low speed. No off course penalty will be applied in such cases.

BR.7.8.6.2 Drivers are not allowed to perform deviations by their own without instructions from marshals. Penalties may be imposed.

BR.7.8.7 Number of laps

BR.7.8.7.1 Counting the number of laps is the team's responsibility. Failure to comply with the number of laps may result in exclusion from the event.

BR.7.8.7.2 The end of the run will be indicated by a checkered flag.

BR.7.8.7.3 In case of additional laps erroneously driven by the team, energy consumption for the Efficiency Event will not be corrected.

BR.7.9 Efficiency Event (IC)

The conversion factors for combustion cars in the Efficiency Event are:

- a. E25 2.178 kg of CO₂ per liter
- b. E100 1.518 kg of CO₂ per liter